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**Saving
through
Converting
your Oil
Furnace**

The Oil Off Oil Handbook



Ontario

Ministry
of
Energy

Honourable
Philip Andrewes
Minister

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— Why switch off-oil? —

More and more homeowners are reducing or even eliminating their consumption of oil for home heating. Maybe you should think about it too, because switching to an alternative can save you between 20 and 40 per cent of your home heating costs over the next 15 years — even if you include the cost of converting or replacing your present oil furnace.

When you go off oil, you can save money by reducing your fuel use, by using less costly fuel and by reducing your maintenance costs. Going off oil means protection from future heating oil price increases and heating your home comfortably and efficiently as well.

But how do you choose between the options — electricity, natural gas, wood, propane or a combination? And should you switch entirely or only partially? How much do the alternatives cost? How much money will they save you? There's a lot to consider and that's what this booklet is about. In the following pages you'll find out about your options and how to choose a better way to keep your house warm and cozy all winter long.

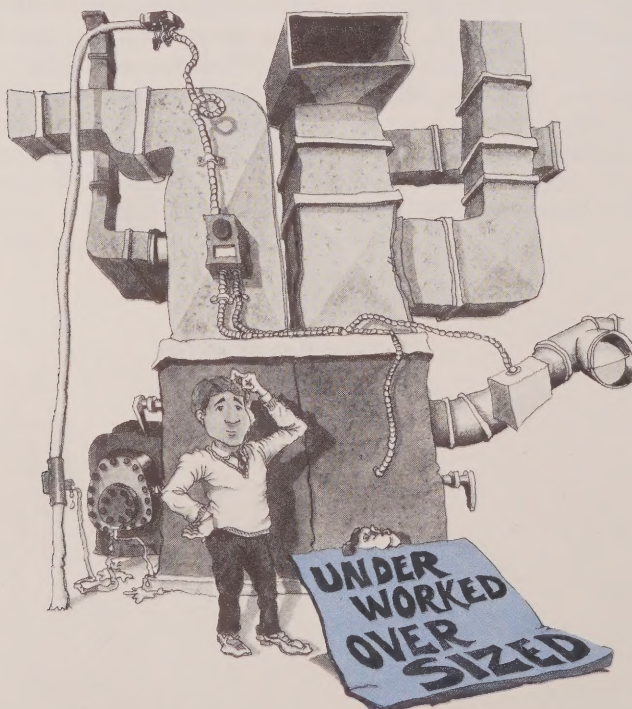
High oil prices are here to stay

Not long ago, about 25 per cent of the crude oil consumed in Canada was imported at world prices. Now only between five and 10 per cent of our oil is imported.

While this decrease in dependency on foreign oil is encouraging, domestic oil prices are now almost as high as world prices.

Furthermore, while the outlook for future oil supplies is uncertain, we currently have enough of our own natural gas and electricity to take us up to the next century.

What it all means is that oil is expensive and is likely to stay that way. If you are heating your home with oil now, you should think seriously about switching to one of several alternative fuels and systems.



Conservation

First things first

Before you modify or replace your oil furnace or boiler, you should be stingy with the heat you have — don't waste it. Taking steps to conserve energy will not only reduce your energy bills right away, but will also keep the required size of your new heating unit to a minimum. A properly sized heating system offers further savings through improved efficiency and in many cases, smaller systems are cheaper to install.

It makes good economic sense to make the most of what you already have. By taking the basic steps listed below you'll be well on your way to saving money.



Seven ways to keep the heat in

1. Turn down the thermostat at night and when no one is home.
2. Seal air leaks by caulking these crucial areas*:
 - the basement sill plate;
 - holes where vents, pipes and wiring enter the house;
 - ceiling fixtures, electric switch plates, baseboards and any other holes in interior walls and ceilings;
 - all window and door frames.
3. Weatherstrip doors, windows, electrical outlets and attic hatches.
4. Insulate the attic.
5. Add storm windows and doors, including inexpensive interior storm windows; upgrade windows to double or triple glazing.
6. Insulate basement walls.
7. Keep your furnace running efficiently by having it tuned at least once a year by a qualified contractor.

*Make certain your house is adequately ventilated. Consult a heating contractor if excessive moisture builds up in your house.

More detailed information on cost-effective conservation measures is available from the Ministry of Energy at (416) 965-3246 (Toronto local) or Zenith 80420; the federal government's Enersave Heatline at (613) 995-1801 (Ottawa local) or 1-800-267-9563; from The Pollution Probe Foundation's Ecology House at (416) 967-0577; or from local utilities and heating contractors.

The off-oil decision

What are your options?

After taking steps to keep the heat in, you will probably want to consider cutting down or eliminating your consumption of oil. Essentially, you have four basic options: *supplementing* oil heat with heat from another source; *converting* your oil heating system so it burns a different fuel; *replacing* your oil heating system with a new heating system; and *upgrading* your oil heating system.

Natural gas, electricity and, in rural areas, wood are the common alternative fuels. In the future, the sun (through active solar heating) may also be a feasible alternative to oil heat, but it is too expensive to be practical right now.

Propane can also be used as a heating fuel, but because it costs about the same as oil, it is not generally an economical choice. If natural gas service is planned for your area in the near future, you might consider heating with propane on a temporary basis because converting from propane to natural gas is often a simple and inexpensive operation.

Whatever kind of oil heating system you have now — forced warm air, hot water or oil-fired space heaters — a variety of heating systems are available that can replace or supplement it.

All of the alternatives can result in energy savings, and since modern heating units are compact, you can often save on space as well.

And that's not all. For some alternatives, financial assistance as well as free expert advice is available. Two federal government programs — the Canada Oil Substitution Program (COSP) offering financial assistance to qualified applicants who are going off-oil, and the Canadian Home Insulation Program (CHIP) offering financial assistance for upgrading a home's energy efficiency — make saving energy even more attractive. Ontario Hydro offers free advice as well as loans under special programs. All these programs and assistance offered by gas utilities are discussed in more detail on page 14.

Summary of heating systems

Electric, natural gas and wood heating systems are commonly used as alternatives to an oil burning system. We will briefly examine the alternatives in the following pages, but keep in mind that new heating systems are constantly under development. In the foreseeable future, for example, induced draft oil furnaces and condensing oil furnaces — both of which require less oil for the heat they produce than do standard

designs — may become available.

In the case of add-on units or conversion units, the indicated lifespan refers only to the new parts of the system. In practice, the lifespan is usually limited by the age of the existing furnace. However, because an add-on electrical heating unit reduces a furnace's workload, the add-on unit may also extend the furnace's lifespan.

Electrical and electrical dual-energy heating systems

Electric baseboards

Electric baseboard heaters can supplement or entirely replace an oil-fired heating system. While complete replacement will probably require a 200-ampere electric service, it is probable your present electric service can accommodate a supplementary system.

Baseboard heaters offer three advantages. They are silent, they have virtually no maintenance costs and they allow installation of an independent thermostat in each room. With independent thermostats you can heat the rooms you use regularly and maintain a lower temperature in the rest of your house.

Cost: Installation costs vary considerably, depending on the structure of your house and on its electric service capacity. Approximate installed cost for a full baseboard system including electric service upgrade (before COSP grant): \$2000-\$3500.

Expected lifespan: 30+ years.

Note: "Plug-in" baseboards are recommended for occasional and limited use only. Overuse of these units can be a safety hazard.

Electric furnace

An oil furnace can be replaced by an electric furnace. Ordinarily this will require a 200-ampere electric service.

Cost: Approximate cost including electric service upgrade (before COSP grant): \$2100-\$2500.

Expected lifespan: 20+ years.

Electric plenum heater

An electric plenum heater is installed in the warm air plenum of an oil furnace. It produces heat using electric resistance elements similar to those of an electric furnace. The existing furnace blower and ductwork distributes the heat.

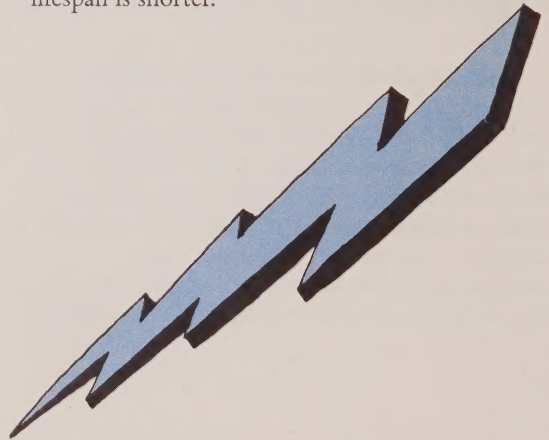
Electric plenum heaters come in several sizes, ranging from five to 18 kilowatts. These units typically replace 50 to 85 per cent of oil-fired heat with electric-resistance heat. Once the electric plenum heater is installed, the oil furnace will operate only during very cold periods. For most of the heating season the plenum heater provides all the heat you need.

Plenum heaters equipped with *load controllers* do not usually require an electric service upgrade, and they cost less to install than an all-electric heating system.

Since plenum heaters can be installed in many but not all furnaces, it is best to consult an energy advisor from your local hydro office or a qualified contractor to determine whether your furnace is suitable for plenum heater conversion.

Cost: Approximate installed cost (before COSP grant): \$1000-\$1700.

Expected lifespan: Since the plenum heater has been developed only recently, its lifespan is uncertain, but it should last at least twenty years — or as long as your oil furnace if the furnace's lifespan is shorter.



Electric boiler

You can replace an oil-fired hot water boiler with an electric boiler. Two hundred ampere service is normally required.

Cost: Approximate installed cost including electric service upgrade (before COSP grant): \$2600-\$3000.

Expected lifespan: 15 years.

Add-on heat pump

An add-on heat pump is an electrically operated heating and cooling appliance which extracts heat from outside air and carries it inside. It provides more heat energy than the electrical energy required for operation. An add-on heat pump can heat a home on its own for much of the year. During the coldest times an oil furnace is needed as a back-up.

In addition to providing heat in winter, a heat pump keeps your home cool in the summer by extracting heat from inside and expelling it outdoors. This may increase your home's property tax assessment.

Prior to the installation of a heat pump, the ductwork, furnace fan and fan motor should be checked by a qualified contractor to ensure they can handle the high volume of air circulation required.

Cost: Approximate installed cost (before COSP grant): \$3100-\$4400.

Expected lifespan: 10+ years

All-electric heat pump

An all-electric heat pump replaces an oil furnace entirely and provides full heating in

winter and cooling in summer. It operates in a fashion similar to the add-on heat pump, but uses electric resistance elements instead of an oil furnace to provide supplementary heat during very cold weather.

An all-electric heat pump usually requires 200-ampere electric service, but occasionally 225-ampere or 400-ampere service is necessary.

Your home's ductwork should be checked by a qualified contractor to make sure it can handle the high volume of air circulation required.

The installation of a heat pump may increase your property tax assessment because of the central air-conditioning feature.

Cost: Approximate installed cost including electric service upgrade (before COSP grant): \$5100-\$6000 (200 or 225-ampere service).

Expected lifespan: 10+ years

Note: Heat pumps, which extract heat from outdoor air, are known as "air-to-air" heat pumps. All heat pumps referred to in this handbook are of this type only.

For further information on electrical heating systems (including the names of qualified contractors or distributors in your area), contact your municipal electric utility; Ontario Hydro; the Ontario Electrical League; the Electrical Contractors Association of Ontario; or the Heating, Refrigeration and Air Conditioning Institute of Canada. Each of these can provide the names of qualified contractors or distributors in your area.

Natural gas heating systems

Gas conversion burner

You can often replace the oil burner in your furnace or boiler with a gas conversion burner.

When gas service is installed, the oil tank is removed. If your chimney does not have a properly installed clay or metal liner, a metal liner must be installed to protect the chimney from flue gas condensate.

Cost: Approximate installed cost including chimney liner (before COSP grant): \$800-\$1200; can be rented from some gas utilities.

Expected lifespan: 21 years or the oil furnace lifespan if shorter.

Conventional gas furnace or boiler

Some oil furnaces and oil boilers cannot be converted economically to use a gas burner. You might instead consider replacement with a gas furnace or boiler.

If your chimney is not properly lined, you will need a metal chimney liner.

Conventional gas furnaces are available with a spark ignition device to eliminate the fuel wastage of a pilot light and a flue damper which reduces heat loss through the chimney.

Cost: Approximate installed cost including chimney liner (before COSP grant): Furnace \$1600-\$1800; Boiler, \$2400-\$2600. For spark ignition and flue damper add \$400-\$500.

Expected lifespan: Furnace: 18 years
Boiler: 24-35 years

Induced draft gas furnace or boiler

The induced draft gas furnace or boiler system is similar to a conventional gas furnace or boiler with spark ignition, but includes a fan to remove flue gas actively, rather than allowing flue gas to exit passively through the chimney.

Flue gases can be ejected horizontally through a wall, eliminating the need for a chimney.

The induced draft gas system uses 20-25 per cent less gas than a conventional gas system.

Cost: Approximate installed cost (before COSP grant): Furnace: \$1900-\$2200.

Boiler: \$3100-\$3400.

Expected lifespan: This is a recently developed technology, but induced draft systems are expected to have a lifespan similar to that of a conventional gas system.

Condensing gas furnace or boiler

The condensing gas furnace or boiler is a high-efficiency system which uses 30 to 40 per cent less fuel than a conventional gas furnace or boiler. It can be vented either vertically or horizontally through the wall using small diameter (3 to 6 cm) plastic pipe, so it does not require a chimney. It produces liquid condensate which drains into the sewer.

Condensing systems can often be simply and inexpensively modified to operate with propane.

Cost: Approximate installed cost (before COSP grant): Furnace, \$2200-\$2500; Boiler, \$3300-\$4700.

Expected lifespan: As this is a recently developed technology, the lifespan of condensing furnaces and boilers is uncertain. However, it is expected to compare with that of conventional gas units, since many manufacturers offer 20-year warranties on the major system components.

Further information about these and other natural gas heating systems is available from qualified contractors; the Heating, Refrigerating and Air Conditioning Institute of Canada; or your local gas utility. For most of the province these are either The Consumers' Gas System, Northern and Central Gas Corporation Limited, or Union Gas Limited.



Wood and other heating systems

Wood stove

A wood stove can cut your oil consumption by more than 50 per cent if correctly sized and located. Furthermore, efficient air-tight woodstoves, which have been certified to the appropriate Canadian Standards Association (CSA) or Underwriters Laboratories of Canada (ULC) standard, are eligible for a federal COSP grant. You should install certified units only.

Correct installation of all components of the wood heating system, making sure to allow adequate clearances to combustibles, and regular maintenance (including regular chimney cleaning) is required for the safe use of wood systems.

Furthermore, for a safe installation, the chimney should be properly assembled, constructed of appropriate materials, and properly sized to the stove. If an existing masonry chimney is to be used, you may need to re-line your existing chimney with a metal liner, or make other alterations and repairs to meet the requirements of the Ontario Building Code.

Cost: Approximate installed cost including chimney (before COSP grant) \$1000-\$2200.

Expected lifespan: 15-20 years.

Wood furnace or boiler

Manually-fed wood furnaces or boilers can replace your oil system. However, if you leave a house heated with this kind of system unattended in cold weather, you risk frozen water lines. Supplementary heating can remove this risk.

Cost: Approximate installed cost (before COSP grant): \$2500-\$4000.

Expected lifespan: 15-20 years.

Add-on and automatic wood-burning systems

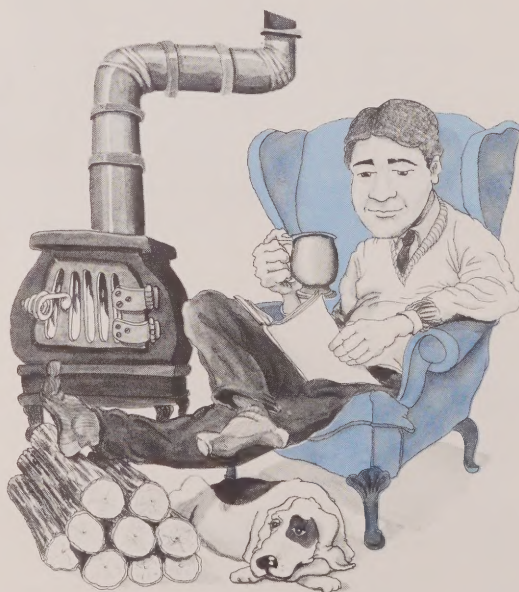
Wood/oil, wood/electric, and wood chip or pellet furnaces are also available. These reduce or eliminate the risk of frozen water lines, as they can operate unattended for several days.

As newcomers on the wood heating scene, wood chip and pellet furnaces are still available in very limited quantities and are currently substantially more expensive than other wood heating systems. You can install a wood/electric

or wood/oil furnace for approximately \$1700-\$2500 (before COSP grant). Wood-burning boilers cost slightly more.

Note: Insurance companies sometimes impose a surcharge on fire insurance premiums if a wood heating system is installed. If you are considering using wood heating, check with your insurance company.

For further information on wood heating systems and on heating systems using propane or solar energy, contact the Ontario Ministry of Energy at 965-3246 (in Toronto) or Zenith 80420. The ministry's new publication *An Old Flame Rekindled: A Guide to Residential Wood Heating* may be of particular interest. The federal government's Conservation and Renewable Energy Office at 2242 Lakeshore Boulevard, West, in Metropolitan Toronto, can also supply information on these systems. In Toronto, call 252-5866. Outside Toronto, call 1-800-268-2207. You can also call the Canadian Wood Energy Institute at (416) 445-6296.



Improved oil systems

Another alternative to consider is burning heating oil more efficiently — by replacing your oil burner or by buying a new model of oil furnace.

Modifying your oil system or replacing it with a new one *does not* qualify for a COSP grant.

New oil burner

In some cases your oil burner can be replaced by a more efficient unit, usually one which incorporates a retention head burner with a smaller nozzle and a solenoid shut-off valve. A new oil burner should reduce your oil consumption by 10 to 15 per cent.

Cost: Approximate installed cost \$400-\$450.

Expected lifespan: 21 years or oil furnace life if shorter.

New oil furnace

If your furnace is not in good condition, it can be replaced by a new, more efficient model. This may require installation of a chimney liner if the chimney is not already properly lined. A new

oil furnace should use 20 to 30 per cent less oil than older oil furnaces.

Cost: Approximate installed cost \$1500-\$1700.

Expected lifespan: 18 years.

For further information on these or other improved oil-burning systems, contact a qualified oil heating contractor. More information on heating system alterations is available in the Ontario Ministry of Municipal Affairs and Housing booklet, *Make the Most of Your Heating System*, available from the Ontario Ministry of Energy at 965-3246 (in Toronto) or Zenith 80420.



Choosing your most economical option

There are obviously many heating alternatives that will save you energy and money — but how do you decide which one to install? Here are two important things to consider:

1. Is your present oil-fired system a forced air system or a hot water system?
2. Do you want to maximize your savings (keep your total investment down over the long-term); or, do you want a system which will pay for itself in reduced heating bills as fast as possible?

Generally, systems which cost less to buy and install are also less efficient and therefore cost more in the long-run. Because of their lower price, however, they pay for themselves in a shorter period of time. If you plan to sell your house in the near future and think your new heating system will add little to the resale value, you will probably be interested in short-term payback. Otherwise you will probably want to keep your long-term costs as low as possible.

To help you decide which alternatives could be attractive for you, we have included two sets of examples. Long-term costs and short term paybacks are estimated both for those who presently have oil-fired hot air systems and those who heat with an oil-fired hot water system.

The costs shown for the various heating system alternatives are based on Toronto-area prices and may not be valid for other parts of Ontario. Heating oil is assumed to cost 33¢ a litre in 1983.

A forecast of fuel prices was required to

perform the calculations for our examples. This price forecast was formulated with the best available information, in July 1983. If significant changes occur in Canadian government policy relating to oil and gas pricing, or if changes in the structure of oil, gas or electricity rates take place (such as a disproportionate increase in the minimum monthly bill) the fuel price forecast may become obsolete, and the examples presented may no longer be valid.

Cost examples shown in the charts include all of the following where applicable:

- capital and installation costs (less COSP grant if applicable)
- removal of old equipment
- adding a chimney liner (when installing some gas, oil and wood burning systems)
- electric service upgrade (for some electric systems described in this book)
- costs for fuel consumed
- maintenance costs

Gas connection charges, ductwork modifications, insurance premium increases and tax reassessments are not included.

Please keep in mind that these figures do not represent an endorsement of any particular heating fuel or system and that the list of alternative heating systems is not exhaustive. If you decide to improve or convert your oil heating system, contact a qualified heating contractor to determine if other options are available in your area.

If you currently heat with an oil-fired forced air system

Total Costs* of Alternative Systems Over 15 Years†

Total Cost in Dollars
based on common annual
oil consumption levels

Alternate Heating System	3000 L	5000 L
Conversion Gas Burner plus Chimney Liner	\$ 9300	\$14300
Conventional Gas Furnace plus Chimney Liner	9800	14800
Conventional Gas Furnace plus Spark Ignition, Flue Damper and Chimney Liner	9400	13700
Induced Draft Gas Furnace	8500	12200
Condensing Gas Furnace	7900	11200
Electric Baseboards	10400	16500
9 kW Plenum Heater	9800	16100
15 kW Plenum Heater	9700	15500
Electric Furnace	10400	16000
Add-on Heat Pump**	10500	15400
All-Electric Heat Pump**	11700	15700
New Oil Burner	10600	16900
New Higher Efficiency Oil Furnace	11200	17100
Retain Present Oil Furnace	11800	19100

*Costs shown include capital, operating and maintenance costs.

†Discounted 15-year Cost. For explanation, see page 12.

Payback Period* (in years) for Conversion to Alternative Systems†

Payback period based
on common annual
consumption levels

Alternate Heating System	3000 L	5000 L
Conversion Gas Burner plus Chimney Liner	1	1-
Conventional Gas Furnace plus Chimney Liner	5	1
Conventional Gas Furnace plus Spark Ignition, Flue Damper and Chimney Liner	6	3
Induced Draft Gas Furnace	4	1-
Condensing Gas Furnace	4	1-
Electric Baseboards	9	8
9 kW Plenum Heater	4	1-
15 kW Plenum Heater	4	1-
Electric Furnace	8	5
Add-on Heat Pump	9	6
All-Electric Heat Pump	10 +	9
New Oil Burner	4	1-
New Oil Furnace	10 +	6

*This table assumes alternative systems are purchased with a 3-year bank loan.

†Discounted Payback Period. For explanation, see page 12.

Discussion

1. Compared to an existing oil furnace, most alternative heating systems will save money at most oil consumption levels.
2. Systems with lower capital costs but higher operating costs, such as a conversion gas burner, are attractive primarily at lower consumption levels.
3. Modifications to an oil furnace save money, but are not generally as cost effective as conversion to a gas system or an electrical system.

When you are considering the alternatives, keep in mind that the capital costs of some heating systems may decrease in the future. The condensing gas furnace is a recent example. Also,

remember that a heat pump provides air conditioning as well as heat. The discounted 15-year cost of installing and maintaining central air conditioning is about \$1,500 – \$2,400. Add this amount to the 15-year costs listed above for the other systems to estimate total costs for heating and air conditioning. For example, the 15-year cost of heating plus an air conditioning unit is about \$11,300 – \$12,200 for a conventional gas furnace at the 3000 litre consumption level, while the comparable figure for the all-electric heat pump is \$11,700. Heating with wood is costly for most urban homeowners. Information for rural homeowners appears on page 7.

If you currently heat with an oil-fired hot water system

Total Costs* of Alternative Systems Over 15 Years†

Total Cost in Dollars based on common annual oil consumption levels

Alternate Heating System	3000 L	5000 L
Electric Boiler	\$10800	\$16400
Electric Baseboards	10400	16500
Gas Conversion Burner plus Chimney Liner	9400	14400
Conventional Gas Boiler plus Chimney Liner	10600	15600
Induced Draft Gas Boiler	9600	13300
Condensing Gas Boiler	10100	13500
New Oil Burner	10700	16900
<i>Retain Present Oil-Fired Boiler</i>	<i>11800</i>	<i>19100</i>

*Costs include capital, operating and maintenance costs.

†Discounted 15-year Cost. For explanation, see page 12.

Payback Periods* (in years) for Conversion to Alternative Systems†

Payback periods based on common annual oil consumption levels

Alternate Heating System	3000 L	5000 L
Electric Boiler	10	7
Electric Baseboards	9	8
Gas Conversion Burner plus Chimney Liner	3	1-
Conventional Gas Boiler plus Chimney Liner	9	5
Induced Draft Gas Boiler	8	4
Condensing Gas Boiler	10	5
New Oil Burner	4	1-

*This table assumes alternative systems are purchased with a 3-year bank loan.

†Discounted Payback Period. For explanation, see page 12.

Systems with short payback periods are not necessarily the cheapest in the long run. For example, a conversion gas burner pays for itself in a year for a house currently consuming about 3,000 litres annually, but costs considerably more than a condensing gas furnace over a 15-year span. Clearly the condensing gas furnace is better in the long term. Not only does it have lower total costs, but it also consumes less fuel. Similarly, a plenum heater and a heat pump can be compared at the 5000-litre consumption level.

Some systems, such as electric baseboards, can last much longer than the 15 years assumed here.

Discussion

1. Most alternatives to oil heating (with a hot water system) offer financial benefits.
2. As is the case with a forced air system, the financial benefits increase with consumption levels.
3. As consumption levels increase, high-efficiency alternatives become even more attractive.

Note that the cost of an electric baseboard system is quite variable. The relative attractiveness of a baseboard system will therefore vary between houses.

The payback period of each alternative decreases as the oil consumption level increases. However, the option with the shortest payback period is often less economical in the long term than a more expensive system.

Also, remember that some systems such as electric baseboards and gas boilers can last much longer than the 15 years assumed here.

The analytical methods used_____

Two methods of analysis were used for our examples: *discounted 15-year cost* and *discounted payback period*.

Discounting is widely used to compare the value of dollars today with dollars in the future. The effects of inflation alone diminish the value of a dollar over time.

Future cash outlays can be translated into present value dollars using a discount rate that incorporates a forecast of inflation and interest rates. Our analysis used a discount rate of 6.5 to 8.0 per cent annually over a 15 year period plus an additional three to four per cent interest that an investor might expect to earn in excess of inflation.

The discounted 15-year cost is used to analyse the long term costs and savings of converting to various options. The total estimated cost of heating a house for 15 years in present value dollars for each alternative heating system is provided. The data include capital and installation costs, operating costs and maintenance costs for each system.

The discounted payback period is used to analyse the benefits of the various options for people interested in a short-term investment only.

The discounted payback period is the time required for accumulated savings to exceed

accumulated cash outlays in present value dollars. If, for example, you made loan payments of \$420 annually for three years on a \$1,000 replacement heating system, and your operating savings amounted to \$410, \$440, and \$475 for the same period, *the new system would cost you less at the end of two years than the amount you saved (\$840 in costs and \$850 in savings)*. From that time on, you would probably save more and more each year.



Country living_____

Rural homeowners may have a different set of off-oil alternatives than their city-dwelling counterparts. For example, natural gas service may be unavailable while wood, which is costly in urban areas, could be plentiful and inexpensive. Wood can be a very economical alternative in rural areas. You can save even more money by cutting it yourself or buying it in four foot lengths rather than split and dried.

Electric heating costs are somewhat higher in rural than in urban areas. If you keep this in mind, you can use the information in the preceding charts as a reasonable guide.



Conclusion

Now it's up to you. Switching from oil to electricity, gas or other fuels can save you money. It's just a matter of how much you want to save and when you want to get started.

Just keep in mind all the things you have to consider. Your choice depends on the location of your home, the condition of your current oil heating system, the initial cost, size and operating convenience of the alternatives, the availability of alternative fuels, your preference of fuels and systems, and on whether you want air conditioning. Noise levels and appearance may also be important, particularly if you are considering an air conditioning unit or a heat pump, because both appliances are installed outdoors.

If you plan to upgrade your heating system, first make sure your home is well insulated, ventilated, weatherstripped and caulked. These are the first steps to energy savings.

The financial programs discussed in the following pages will help you make your off-oil decision.

We hope you have found this handbook useful and informative. If you require more information on oil furnace conversions, please don't hesitate to contact us. We're the Ontario Ministry of Energy. Our telephone number is 965-3246 (in Toronto) or if long distance in Ontario, ask the operator for Zenith 80420. It's toll-free.

Financial assistance for conservation and oil furnace conversion

Canadian Home Insulation Program (CHIP)

This federal program provides taxable grants to homeowners who insulate or weatherize homes built before 1971. The grant covers 60 per cent of eligible costs up to a maximum of \$500.

For more information regarding CHIP, call 789-0581 in Toronto, or 1-800-268-1818 toll-free in other areas of the province.

Canada Oil Substitution Program (COSP)

The federal government offers taxable grants to homeowners, businesses and certain non-profit organizations reducing their oil heating needs by at least 50 per cent.

In Ontario, eligible alternatives include electricity, natural gas, propane, wood, wind, solar, coal and peat.

The taxable grant covers 50 per cent of eligible conversion costs up to a maximum grant of \$800 for single-family residences or other buildings and up to \$5,500 for multiple unit dwellings. The program is effective for conversions made on or after October 28, 1980 until December, 1990.

Application forms are available from the gas utilities for gas conversions, public utility commissions for electric conversions, or the Conservation and Renewable Energy Office of Energy, Mines and Resources Canada, (416) 252-5866 or 1-800-268-2207, for all other conversions.

Residential Energy Advisory Program (REAP)

Under this program, Ontario Hydro and many municipal electrical utilities will advise you on ways to make your home more energy-efficient, and will lend up to \$2,000, at interest rates close to Ontario Hydro's own borrowing rate (lower than the banks' rates for personal loans).

These loans will assist you to:

- generally improve your home's energy efficiency
- improve your insulation
- upgrade your electrical wiring
- convert your heating system wholly or partially to electrical heating

In addition, you will receive assistance in:

- assessing your home's insulation, ventilation, weather-sealing and electrical wiring needs
- taking full advantage of federal assistance programs such as the Canadian Home Insulation Program (CHIP) and the Canadian Oil Substitution Program (COSP)
- finding a qualified contractor for energy conservation or electrical heating projects
- making certain that your conversion meets local standards

To become eligible for a REAP loan, you must first use any applicable COSP or CHIP grants and pay \$200 of the remaining cost. The REAP loan is repayable over a period of up to five years.

REAP is one of the important initiatives of the Ontario government's BILD (Board of Industrial Leadership and Development) strategy.

REAP exists throughout Ontario Hydro's rural service area. Ontario Hydro also has a program to encourage homeowners to install an electric dual energy system. Currently, it includes a contribution of up to \$200 to the cost of installing such a system, if controlled by an outdoor thermostat. Municipal electric utilities have the authority to undertake similar programs in their service areas, and many have done so.

For further information, call Ontario Hydro at 592-3815 (in Toronto), or your municipal electric utility or public utilities commission.

Residential Rehabilitation Assistance Program (RRAP)

Sponsored by the Canada Mortgage and Housing Corporation (CMHC), the RRAP program offers loans of up to \$10,000 for specified home repairs, including heating system and electrical system repairs. They are available to

households whose annual income does not exceed \$23,000. Up to 50 per cent of the loan may be forgivable. Further information may be obtained from CMHC.

Assistance from gas utilities

Natural gas utilities in Ontario can provide you with information and assistance for off-oil conversions and energy conservation.

These utilities will:

- help you take full advantage of federal assistance programs such as the Canadian Home Insulation Program (CHIP) and the Canadian Oil Substitution Program (COSP)
- locate qualified contractors for natural gas heating projects
- finance furnace conversions at market rates with repayment on your monthly gas bill
- offer conservation improvement packages and financing for these packages (varies among utilities)
- conduct a follow-up inspection to ensure the completed job meets local standards

Notes

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Out-of-town customers write to Publications
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